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| 09/715,668      | 11/16/2000  | Mohammed H. Nafie    | TI-30627            | 7846             |

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| EXAMINER |
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ZHENG, EVA Y

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| ART UNIT | PAPER NUMBER |
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2634

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/715,668

Applicant(s)

NAFIE ET AL

Examiner

Eva Yi Zheng

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/6/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13, 14 and 27 is/are allowed.
- 6) ☒ Claim(s) 1-11 and 15-25 is/are rejected.
- 7) ☒ Claim(s) 12 and 26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Arguments***

1. In view of the Appeal Brief filed on 12/6/05, PROSECUTION IS HEREBY REOPENED set forth below:

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 5-11 and 15-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin et al. (US 6,553,063).

- a) Regarding to claim 1, Lin et al disclose a method of communicating a desired bit sequence over a wireless communication link, comprising:

including the desired bit sequence in each of a plurality of transmissions over the wireless communication link (transmitter and receiver as shown in Fig. 6);

producing in response to each of the plurality of transmissions a received bit sequence corresponding to the desired bit sequence (input line 25 in Fig. 3; Col 10, L13);

obtaining information indicative of communication quality associated with each of the plurality of transmissions (SNR 28 in Fig. 3); and

making a determination of the desired bit sequence based on a combination of the received bit sequences and the communication quality information (block 29 in Fig. 3; Col 4, L15-64).

- b) Regarding to claim 2, Lin et al discloses obtaining step includes estimating signal-to-noise ratios respectively associated with the plurality of transmissions. (SNR 28 in Fig. 3)
- c) Regarding to claim 3, Lin et al discloses transmitting the plurality of transmissions on respectively different transmission frequencies. (Col 1, L60-62)
- d) Regarding to claims 5 and 18, Lin et al discloses producing step includes decoding each of a plurality of packets which are respectively included in the plurality of transmissions and in each of which is included the desired bit sequence. (26 in Fig. 3; Col 4, L35-50)
- e) Regarding to claim 6, Lin et al discloses making step includes providing in response to the received bit sequences and the communication quality information a plurality of predetermined probabilities that the respective received bit sequences correspond to a predetermined bit sequence that could possibly be the desired bit sequence. (31 in Fig. 3; Col 3, L42- Col 4, L14 and MLSE; Col 4, L35-63)
- f) Regarding to claim 7, Lin et al discloses a method of communicating a desired bit sequence over a wireless communication link, comprising:

including the desired bit sequence in each of a plurality of transmissions over the wireless communication link (transmitter and receiver as shown in Fig. 6);

producing in response to each of the plurality of transmissions a received bit sequence corresponding to the desired bit sequence (input line 25 in Fig. 3; Col 10, L13);

obtaining information indicative of communication quality associated with each of the plurality of transmissions (SNR 28 in Fig. 3); and

making a determination of the desired bit sequence based on a combination of the received bit sequences and the communication quality information (block 29 in Fig. 3; Col 4, L15-64),

wherein said making step includes providing in response to the received sequences and the communication quality information a plurality of predetermined probabilities that the respective received bit sequences correspond to a predetermined bit sequence that could possibly be the desired bit sequence (31 in Fig. 3; Col 3, L42-Col 4, L14 and MLSE; Col 4, L35-63), and

wherein said making step included multiplying the plurality of predetermined probabilities together to produce a product (inherent as MLSE).

g) Regarding to claim 8, Lin et al disclose wherein said making step includes performing said probability providing step and said multiplying step for a plurality of predetermined bit sequences that could possibly be the desired bit sequence in order to produce a plurality of products respectively corresponding to the plurality of predetermined bit sequences (29 in Fig. 3; MLSE; Col 4, L35-63).

h) Regarding to claims 9, 22 and 24, Lin et al disclose wherein said making step includes making a determination that the predetermined bit sequence corresponding to the largest of the products is the desired bit sequence (inherent as MLSE).

i) Regarding to claim 10, Lin et al disclose wherein said obtaining step includes obtaining a plurality of correction values respectively associated with the plurality of transmissions (Fig. 6; Col 7, L29-60).

j) Regarding to claim 15, Lin et al disclose making step includes making a determination that the received bit sequence corresponding to the largest of the correlation values is the desired bit sequence (Col 7, L29-60).

Lin et al disclose a method of communicating a desired bit sequence over a wireless communication link, comprising:

including the desired bit sequence in each of a plurality of transmissions over the wireless communication link (transmitter and receiver as shown in Fig. 6);

producing in response to each of the plurality of transmissions a received bit sequence corresponding to the desired bit sequence (input line 25 in Fig. 3; Col 10, L13);

obtaining information indicative of communication quality associated with each of the plurality of transmissions (SNR 28 in Fig. 3); and

making a determination of the desired bit sequence based on a combination of the received bit sequences and the communication quality information (block 29 in Fig. 3; Col 4, L15-64),

wherein the desired bit sequence and the received bit sequences each include only a signal bit (Col 5, L14-16).

k) Regarding to claim 16, Lin et al disclose a wireless communication apparatus, comprising:

a first input for receiving a plurality of received bit sequences respectively produced in response to a plurality of transmissions received via a wireless communication link, each of said received bit sequences corresponding to a desired bit sequence included in each of said plurality of transmissions (25 in Fig. 3);

a second input for receiving information indicative of communication quality associated with each of the plurality of transmissions (28 in Fig. 3); and

a determiner coupled to said inputs for making a determination of the desired bit sequence based on the received bit sequences and the communication quality information (29 in Fig. 3).

l) Regarding to claim 19, Lin et al discloses determiner is operable for providing in response to the received bit sequences and the communication quality information a plurality of predetermined probabilities that the respective bit sequences correspond to a predetermined bit sequence that could possibly be the desired bit sequence. (Col 4, L15-64)

m) Regarding to claims 20 and 21, Lin et al disclose a wireless communication apparatus, comprising:

a first input for receiving a plurality of received bit sequences respectively produced in response to a plurality of transmissions received via a wireless

communication link, each of said received bit sequences corresponding to a desired bit sequence included in each of said plurality of transmissions (25 in Fig. 3);

a second input for receiving information indicative of communication quality associated with each of the plurality of transmissions (28 in Fig. 3); and

a determiner coupled to said inputs for making a determination of the desired bit sequence based on the received bit sequences and the communication quality information (29 in Fig. 3),

wherein said determiner is operable for providing in response to the received bit sequences and the communication quality information a plurality of predetermined probabilities that the respective bit sequences correspond to a predetermined bit sequence that could possibly be the desired bit sequence (Col 4, L15-64), and

wherein said determiner is operable for multiplying the plurality of predetermined probabilities together to produce a product (inherent as MLSE).

n) Regarding to claim 23, Lin et al disclose a correlator (78 in Fig. 6) coupled to said second input for producing a plurality of correlation values respectively associated with said plurality of transmissions and providing the correlation values to said second input (Col 7, L29-60).

o) Regarding to claim 25, Lin et al disclose the determiner includes a combiner coupled to said first and second inputs for combining the received bit sequences with the corresponding correlation values. (inherent as block 26 in Fig. 3)



***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al in view of applicant admitted prior art (AAPA).

Regarding claim 4 and 17, Lin et al discloses a transceiver for cellular mobile radio telephone system and all the subject matter as described above except for the specific teaching of a bluetooth link.

AAPA discloses typical bluetooth devices include cordless phone station, and LAN access point, etc. Bluetooth is essentially used for voice communications.

(background, Page 3-4)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the bluetooth link as the communication link in the Lin et al system to improve the communication quality and providing more gain in channel fading for plurality of transmissions.

***Allowable Subject Matter***

6. Claims 12 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claims 13,14 and 27 are allowed.

8. The following is an examiner's statement of reasons for allowance:

None of the prior art teaches or suggests a communication system comprising a combining step includes multiplying each of the received bit sequences by one of the corresponding correlation value and the square of the corresponding correlation value to produce a plurality of multiplication results.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Zheng whose telephone number is 571-272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eva Yi Zheng  
Examiner  
Art Unit 2634

February 17, 2006

  
CHIEH M. FAN  
SUPERVISORY PATENT EXAMINER